

Serial No. 09/902,523

In the Claims:

Please cancel Claims 1-25 and 43-81, without prejudice, and add claim 82 as follows:

1-25. (Cancelled)

26. (Original) A system for closed-chest surgical intervention within a patient's heart or great vessel, the system comprising:

means for forming a percutaneous penetration in an intercostal space in the patient's chest;

a visualization scope configured to pass through an intercostal space in the patient's chest for viewing an internal chest cavity;

means for arresting the patient's heart from a location outside of the chest cavity;

a cardiopulmonary bypass system, including means for delivering oxygenated blood to the patient's arterial system;

cutting means positionable through a percutaneous intercostal penetration into the chest cavity for forming an internal penetration in a wall of the patient's heart or great vessel; and

interventional means positionable through a percutaneous intercostal penetration and through the internal penetration for performing a surgical procedure within the heart or great vessel.

27. (Original) The system of claim 26 wherein the means for arresting the heart comprises an endovascular catheter having expandable means for occluding the patient's ascending aorta between the patient's coronary arteries and the patient's brachiocephalic artery, and an internal lumen for delivering cardioplegic fluid into the ascending aorta upstream of the expandable means.

28. (Original) The system of claim 26 wherein the interventional means comprises means for securing a replacement valve at a valve location within the patient's heart.

29. (Original) The system of claim 28 further comprising a cannula positionable in a percutaneous intercostal penetration, the cannula having a lumen therein through which the replacement valve may be introduced into the internal chest cavity.

5 30. (Original) The system of claim 28 wherein the replacement valve comprises an annular portion for attachment to a valve annulus in the heart, the annular portion having an outer diameter, wherein the lumen in the cannula has a cross-sectional height at least equal to the outer diameter, and a cross-sectional width less than the width of the intercostal space.

6 31. (Original) The system of claim 28 further comprising cutting means positionable through a percutaneous intercostal penetration and through the internal penetration for removing at least a portion of the patient's heart valve.

7 32. (Original) The system of claim 28 further comprising means positionable through a percutaneous intercostal penetration and through the internal penetration for sizing a valve annulus of the patient's heart valve.

8 33. (Original) The system of claim 32 wherein the sizing means comprises an elongated shaft and sizing means at a distal end of the shaft, wherein the shaft and sizing means may be introduced through a percutaneous intercostal penetration and through the internal penetration to position the sizing means near the valve annulus.

9 34. (Original) The system of claim 28 further comprising means for introducing the replacement valve into the patient's heart, the introducing means comprising an elongated shaft having means at a distal end thereof for releasably holding the replacement valve.

10 35. (Original) The system of claim 34 wherein the introducing means further comprises means actuated from a proximal end of the shaft for pivoting the replacement valve relative to the shaft from a first position for introduction through a percutaneous intercostal penetration to a second position for attachment at the valve location.

11 36. (Original) The system of claim 28 wherein the means for securing the replacement valve comprises means positionable through a percutaneous intercostal penetration for suturing the replacement valve to a valve annulus at the valve location.

12 37. (Original) The system of claim 36 further comprising organizing means for maintaining sutures in spaced-apart positions outside of the chest cavity after the sutures have been applied to the valve annulus.

13 38. (Original) The system of claim 37 wherein the organizing means is fixed to a proximal end of a cannula disposed in a percutaneous intercostal penetration, the cannula having a lumen through which the replacement valve may be introduced into the chest cavity.

14 39. (Original) The system of claim 37 further comprising means on the organizing means for maintaining tension on ends of the sutures to facilitate advancing the replacement valve along the sutures into the patient's heart.

15 40. (Original) The system of claim 26 further comprising retraction means positionable through an intercostal space in the patient's chest for opening the internal penetration in the wall of the heart or great vessel.

16 41. (Original) The system of claim 26 wherein the interventional means is configured to reach the interior of the heart or great vessel from a percutaneous penetration in a right lateral portion of the patient's chest.

17 42. (Original) The system of claim 41 wherein the interventional means is at least about 20 cm in length.

43-81. (Cancelled)

18
82. (Newly Added) A system for surgical intervention within a patient's heart or great vessel, the system comprising:

a2
means for forming a percutaneous penetration in an intercostal space in the patient's chest;

cutting means positionable through a percutaneous intercostal penetration into the chest cavity for forming an internal penetration in a wall of the patient's heart or great vessel;
and

interventional means positionable through a percutaneous intercostal penetration and through the internal penetration for performing a surgical procedure within the heart or great vessel.